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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FLANDRO, RYAN M	
ART UNIT	**PAPER NUMBER**
3679	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)	
	10/091,838	ALBERSON ET AL.	
	Examiner	Art Unit	
	Ryan M Flandro	3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7-12 and 14-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15-21* is/are allowed.

6)☒ Claim(s) *1,3-5,7,8,22-32,36 and 37* is/are rejected.

7)☒ Claim(s) *9-12,14 and 33-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 March 2004 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Laturner (US 5,112,028). Laturner clearly shows and discloses a collapsible cushion portion **12** comprising a first panel member **50** being cambered by at least one bend in the panel **50**, the first panel **50** configured to collapsibly fold during a collision and, due to shape memory, will substantially return to an unfolded condition following a collision (see figures 2-7 and column 4 lines 38-66), and a second panel member **50** being cambered by at least one bend in the panel **50**, the first

panel **50** configured to collapsible fold during a collision and due to shape memory, substantially return to an unfolded condition following a collision (*Id.*), the second panel **50** spaced apart from the first panel **50** such that a collapsible cell is formed between the first and second panels **50**.

5. Claims 22, 23, 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Sicking et al (US 4,815,565) (Sicking).

a. Claim 22. Sicking clearly shows and discloses a first cambered panel **28** having a first plurality of bends; a second cambered panel **28** (opposite side of barrier) having a second plurality of bends, each of the second plurality of bends corresponding to one of the first plurality of bends; and a plurality of diaphragms **26** coupling the first cambered panel **28** and the second cambered panel **28**, the diaphragms **26** cooperating with the first and second cambered panels **28** to form an array of collapsible cells between the first and second cambered panels **28** (see figures 1-6, 9 and 11).

b. Claim 23. Sicking further shows and discloses that the collapsible cells collapse longitudinally when a longitudinal force is applied to the roadway crash cushion **20** (see figure 4).

c. Claim 29. Sicking further shows and discloses each of the first plurality of bends is located at a point on the first cambered panel **28** that corresponds with a similar location on the second cambered panel **28** (other side of barrier) (see especially figures 3 and 9).

d. Claim 30. Sicking further shows and discloses each of the first plurality of bends are located at a point on the first cambered panel **28** that corresponds with a midway

point within an associated collapsible cell (see figure 9). The "midway point" of the collapsible cell is broadly interpreted here to include the **vertical** midpoint of the collapsible cell.

e. Claim 31. Sicking further shows and discloses a tension cable **30** coupling at least two diaphragms **26**, the tension cable **30** operable to redirect a force applied perpendicularly to the first cambered panel **28** (see figures 1, 3-6 and 8-11).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laturner (US 5,112,028) in view of Stephens et al (US 6,461,076) (Stephens).

a. Claim 1. Laturner shows and discloses a collapsible, substantially self-restoring collapsing portion **10** comprising a pair of substantially planar panels **50** formed substantially of an elastomeric material (see column 4 lines 38-66), the panels **50** each being cambered by a bend in the panel **50**, the panels **50** being spaced apart such that a collapsible cell is formed between the panels **50** (see figures 2-7; column 3 line 42-column 6 line 32).

Laturner does not disclose that the panels **50** are formed from a thermoplastic material but rather that the panels **50** are formed from "an elastomeric material capable of absorbing energy at high strain rates and remaining flexible during extremes of heat and cold" as well as being reusable after impact (see column 4 lines 38-66).

Stephens, however, teaches elements of energy absorbers are made of a thermoplastic material such as polyethylene (see column 2 lines 14-17) such that upon the removal of the impact load the energy absorber element returns to its original shape.

Notably, both Laturner and Stephens are concerned with energy absorbing elements that are reusable after impact. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Laturner to be made of a thermoplastic material that returns to its original shape after impact as taught by Stephens. Moreover, it has been held that the selection of a known material based upon its suitability for the intended use is a an obvious variation within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

b. Claim 3. As applied above, Stephens teaches that the thermoplastic material is polyethylene (see column 2 line 15).

c. Claim 4. Laturner further shows and discloses at least one substantially rectangular supporting frame **18** that is secured to each of the panels **50** (see figures 2, 3, 4, 6 and 7; column 3 line 58 – column 4 line 7).

d. Claim 7. Laturner further shows and discloses a nose piece **70** (see figures 1 and 2).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laturner in view of Stephens, as applied above, further in view of Mileti (US 4,190,275). The combination of Laturner and Stephens, as applied to claims 1 and 4 above, discloses that the supporting frames **18** slide along the ground upon impact (see column 3 lines 62-68), but lacks disclosure of a longitudinal, ground-mounted rail member and wherein the supporting frame engages the rail member for slidable movement along the rail member.

Stephens teaches a longitudinal, ground-mounted rail member **30** wherein a supporting frame **32** engages the rail member **30** for slidable movement along the rail member **30** (see figures 1, 3, 4 and 5; column 2 lines 26-48) in order to resist lateral deflection upon impact (see column 1 lines 26-28). Likewise, Mileti teaches a longitudinal, ground-mounted rail member **86** wherein a supporting frame **80** engages the rail member **86** for slidable movement along the rail member **86** (see figures 8 and 9; column 4 line 55 – column 5 line 25) in order to prevent lateral and/or vertical displacement of the support frames **80** upon impact.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include engagement between the support frames **18** of Laturner and a

longitudinal rail in order to prevent vertical and lateral deflection of the device upon impact as taught by either Mileti or Stephens.

10. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicking, as applied above, in view of any one of Mileti and Stephens.

a. Claim 26. Sicking does not disclose that each diaphragm engages at least one longitudinal, ground-mounted rail member to allow slidable movement of the diaphragms along the rail member as the collapsible cells collapse. Mileti, however, teaches a longitudinal, ground-mounted rail member **86** wherein diaphragms **50, 52, 54, 56** engage a rail member **86** for slidable movement along the rail member **86** (see figures 8 and 9; column 4 line 55 – column 5 line 25) in order to prevent lateral and/or vertical displacement of the support frames **80** upon impact. Likewise, Stephens teaches a longitudinal, ground-mounted rail member **30** wherein diaphragms **16** engage the rail member **30** for slidable movement along the rail member **30** (see figures 1, 3, 4 and 5; column 2 lines 26-48) in order to resist lateral deflection upon impact (see column 1 lines 26-28). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include engagement between the diaphragms of Sicking and a longitudinal rail in order to prevent vertical and lateral deflection of the device upon impact as taught by either Mileti or Stephens.

b. Claim 27. Mileti further teaches each diaphragm **50,52,54,56** engages at least two longitudinal, ground-mounted rail members **86** to allow slidable movement of the

diaphragms **50,52,54,56** along the rail member **86** as the collapsible cells collapse (see figures 8 and 9; column 4 line 55 – column 5 line 25).

c. Claim 28. Mileti further teaches each diaphragm **50,52,54,56** comprises a pair of shoes **80,84** for slidably engaging the rail members **86** (see figures 8 and 9; column 4 line 55 – column 5 line 25).

11. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicking, as applied to claims 22 and 23 above, in view of Stephens.

a. Claim 24. Sicking, as applied to claim 23 above, lacks disclosure that the first and second cambered panels **28** comprise a thermoplastic material operable to substantially return the first and second cambered panels to their initial form after the collapsible cells collapse. Stephens, however, teaches elements of energy absorbers are made of a thermoplastic material such as polyethylene (see column 2 lines 14-17) such that upon the removal of an impact load the element returns to its original shape. Notably, both Sicking and Stephens are concerned with energy absorbing elements that are reusable after impact. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Sicking to be made of a thermoplastic material that returns to its original shape after impact as taught by Stephens. Moreover, it has been held that the selection of a known material based upon its suitability for the intended use is an obvious variation within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

b. Claim 25. Stephens further teaches that the thermoplastic material comprises polyethylene (see column 2 lines 14-17).

12. Claims 32, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicking, as applied to claim 22 above, in view of Laturner.

a. Claim 32. Sicking, as applied to claim 22 above, further shows and discloses a nose piece **22** configured to receive a longitudinal force (see figures 1-6) but lacks disclosure that a first end of the nose piece is coupled to the first cambered panel, a second end of the nose piece is coupled to the second cambered panel. Laturner, however, teaches a nose piece **70** configured to receive a longitudinal force and having a first end of the nose piece **70** coupled to a first cambered panel **20**, a second end of the nose piece **70** coupled to a second cambered panel **20** (see figures 1-3; column 5 lines 17-19) to provide a rounded surface at the front end of the impact system. This is substantially the same as the front impact nose piece of Sicking. Inasmuch as the references disclose these elements as art recognized equivalents, it would have been obvious to one of ordinary skill in the art to substitute one for the other. In re Fout, 675 F.2d 297, 301, 213 USPQ 532, 536 (CCPA 1982).

b. Claim 36. Sicking lacks disclosure that the array of collapsible cells comprises a first cell of a first size; and a second cell of a second size, the second size smaller than the first size, the second cell downstream from the first cell. Nevertheless, Laturner teaches an array of collapsible cells comprising a first cell of a first size (see figure 8 – the third, fourth, fifth and sixth cells away from the nose of the system); and a second cell of a

second size (see figures 8 – the first two cells towards the nose of the impact attenuator), the second size smaller than the first size, the second cell downstream from the first cell. The term downstream is a relative term that has no point of reference in the instant claims; accordingly, downstream has been construed to mean the direction going longitudinally away from **H** in figure 8. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sicking to include a cell of a first size and a cell of a second size for the reasons taught by Laturner.

c. Claim 37. Sicking lacks disclosure that the array of collapsible cells comprises a first plurality of cells, each of the first plurality of cells of a first size; and a second plurality of cells, each of the second plurality of cells of a second size, the second size smaller than the first size, the second plurality of cells downstream from the first plurality of cells. Nevertheless, Laturner teaches an array of collapsible cells comprising a first plurality of cells of a first size (see figure 8 – the third, fourth, fifth and sixth cells away from the nose of the system); and a second plurality of cells of a second size (see figures 8 – the first two cells towards the nose of the impact attenuator), the second size smaller than the first size, the second cell downstream from the first cell. Laturner teaches such a configuration so that increasing deceleration forces can be provided as the system progressively collapses (see column 6 lines 17-32). The term downstream is a relative term that has no point of reference in the instant claims; accordingly, downstream has been construed to mean the direction going longitudinally away from **H** in figure 8. Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify Sicking to include a plurality of cells of a first size and a plurality of cells of a second size for the reasons taught by Laturner.

Response to Arguments

13. Applicant's arguments with respect to claims 1, 4, 5, 7-12, 14-16 and 18-20 and the rejection of such claims under §102 (Mileti) have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments, with respect to the rejection(s)of claim(s) 3 and 17 under §103(a) as being unpatentable over Mileti in view of McFadden have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection for claim 3 is made in view of Laturner and Stephens (see above).

Allowable Subject Matter

15. Claims 15-21 are allowed.

16. Claims 9-12, 14 and 33-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

a. Claim 9. The prior art, including Laturner, Sicking, Mileti and Stephens, either alone or in combination, fails to disclose or teach a plurality of diaphragms affixed to the panel members as particularly recited in claim 8. Claims 10-12 and 14 depend therefrom.

b. Claim 15. The prior art, including Laturner, Sicking, Mileti and Stephens, either alone or in combination, fails to disclose or teach a ground-mounted base track in combination with a pair of substantially planar panel members positioned ***parallel*** to one another in a substantially vertical orientation and a plurality of diaphragms for securing the particularly recited panel members together. Claims 16-20 depend therefrom.

c. Claim 21. The prior art, including Laturner, Sicking, Mileti and Stephens, either alone or in combination, fails to disclose or teach a plurality of diaphragms for securing the particularly recited panel members together.

d. Claim 33. The prior art, including Laturner, Sicking, Mileti and Stephens, either alone or in combination, fails to disclose or teach three separate arrays of cells wherein the cells in the first, second, and third groupings are sized such that the cells in the first and second groupings collapse before the cells in the third grouping. Claims 34 and 35 depend therefrom.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to roadway impact barriers and crash cushions:

U.S. Patent 5,733,062 to Oberth et al. (generally shows and discloses panels, nose piece, basetrack, and diaphragms)

For clarification of the record, the McFadden reference (US 5,746,419), which was cited in the previous Office action and argued in Applicant's recent amendment, has been included in Form 892 attached hereto since it was not previously included in an 892 or in Applicant's IDS submissions.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan M Flandro whose telephone number is (703) 305-6952. The examiner can normally be reached on 8:30am - 5:30pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Stodola can be reached on (703) 308-2686. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMF
5/3/04

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